



This puzzle is a variation of the classic Tower of Hanoi. You can play it on several different levels of difficulty and with variant sets of rules.

The puzzle begins with a stack of disks in the left hand column as shown in the insets below. Your object in each puzzle is to transfer the disks to the right-hand column, keeping the same numerical order.

The basic rule is do not place a disk on another disk of smaller value. Otherwise, shuttle the disks one at a time among the three columns until you have the proper arrangement in the right-hand column.

Puzzles 1, 2, 3 and 4 (see first diagram below, left) – find the minimum number of moves to transfer 2, 3, 4 and 5 disks respectively to the right-hand column.

Puzzle 5 (second diagram below) – find the minimum number of moves to transfer the four disks, observing an additional rule that a disk can not be placed on another disk of the same color. That means that disk 1 cannot be placed on disk 4.

The best way to avoid false moves in this puzzle is to move the smallest disk from one column to the next and then any disk other than the smallest. Although such a recipe seems arbitrary, it ensures that there will always be one legal move. And repeating the pattern over and over will miraculously bring you to the solution. There is some deep connection between the cyclical movements of the disks and the mathematical underpinnings of this puzzle.

For Puzzle 1, which has the restriction against placing disk 1 on disk 4, nineteen moves are required.

For Puzzle 2, which has restrictions against placing disk 1 on disk 3, and disk 2 on disk 4, the minimum number of moves required is only fifteen - the same as if there were no restrictions.